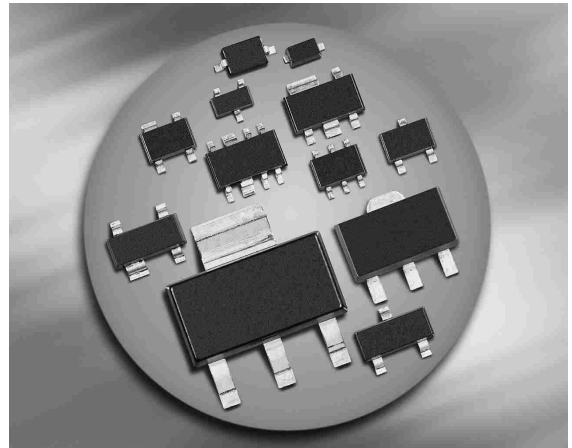


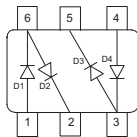
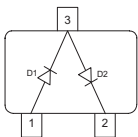
## Silicon Switching Diode

- For high-speed switching applications
- Series pair configuration



**BAV99**  
**BAV99F**  
**BAV99T**  
**BAV99W**

**BAV99S**  
**BAV99U**



Type	Package	Configuration	Marking
BAV99	SOT23	series	A7s
BAV99F*	TSFP-3	series	A7s
BAV99S	SOT363	dual series	A7s
BAV99T	SC75	series	A7s
BAV99U	SC74	dual series	A7s
BAV99W	SOT323	series	A7s

\* Preliminary

**Maximum Ratings** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Value	Unit
Diode reverse voltage	$V_R$	80	V
Peak reverse voltage	$V_{RM}$	85	
Forward current	$I_F$	200	mA
Non-repetitive peak surge forward current	$I_{FSM}$		A
$t = 1 \mu\text{s}$		4.5	
$t = 1 \text{ ms}$		1	
$t = 1 \text{ s, single}$		0.5	
$t = 1 \text{ s, double}$		0.75	
Total power dissipation	$P_{tot}$		mW
BAV99, $T_S \leq 28^\circ\text{C}$		330	
BAV99F, $T_S \leq \text{td}$		250	
BAV99S, $T_S \leq 85^\circ\text{C}$		250	
BAV99T, $T_S \leq 104^\circ\text{C}$		250	
BAV99U, $T_S \leq 113^\circ\text{C}$		250	
BAV99W, $T_S \leq 110^\circ\text{C}$		250	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-65 ... 150	

### Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup>	$R_{thJS}$		K/W
BAV99		$\leq 360$	
BAV99F		$\leq \text{td}$	
BAV99S		$\leq 260$	
BAV99T		$\leq 185$	
BAV99U		$\leq 150$	
BAV99W		$\leq 160$	

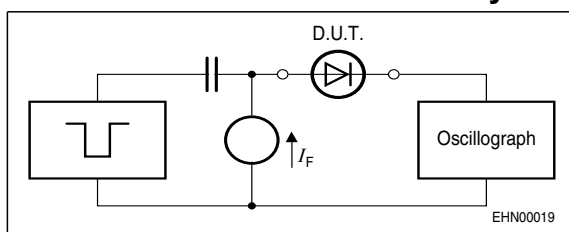
<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)} = 100 \mu A$	$V_{(BR)}$	85	-	-	V
Reverse current $V_R = 70 V$ $V_R = 25 V, T_A = 150 ^\circ C$ $V_R = 70 V, T_A = 150 ^\circ C$	$I_R$	- - -	- - -	0.15 30 50	$\mu A$
Forward voltage $I_F = 1 mA$ $I_F = 10 mA$ $I_F = 50 mA$ $I_F = 100 mA$ $I_F = 150 mA$	$V_F$	- - - - -	- - - - -	715 855 1000 1200 1250	mV

**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$	$C_T$	-	-	1.5	pF
Reverse recovery time $I_F = 10\text{ mA}$ , $I_R = 10\text{ mA}$ , measured at $I_R = 1\text{ mA}$ , $R_L = 100\text{ }\Omega$	$t_{rr}$	-	-	4	ns

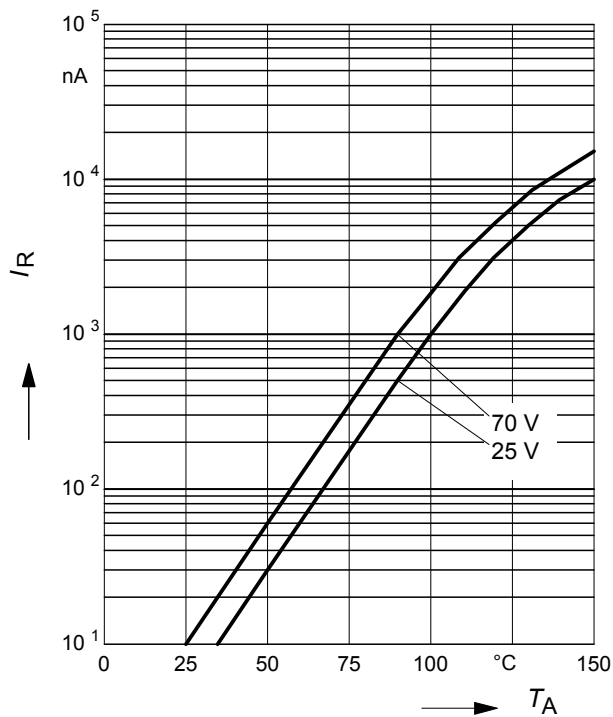
**Test circuit for reverse recovery time**


Pulse generator:  $t_p = 100\text{ns}$ ,  $D = 0.05$ ,  
 $t_r = 0.6\text{ns}$ ,  $R_i = 50\Omega$

Oscilloscope:  $R = 50$ ,  $t_r = 0.35\text{ns}$   
 $C \leq 1\text{pF}$

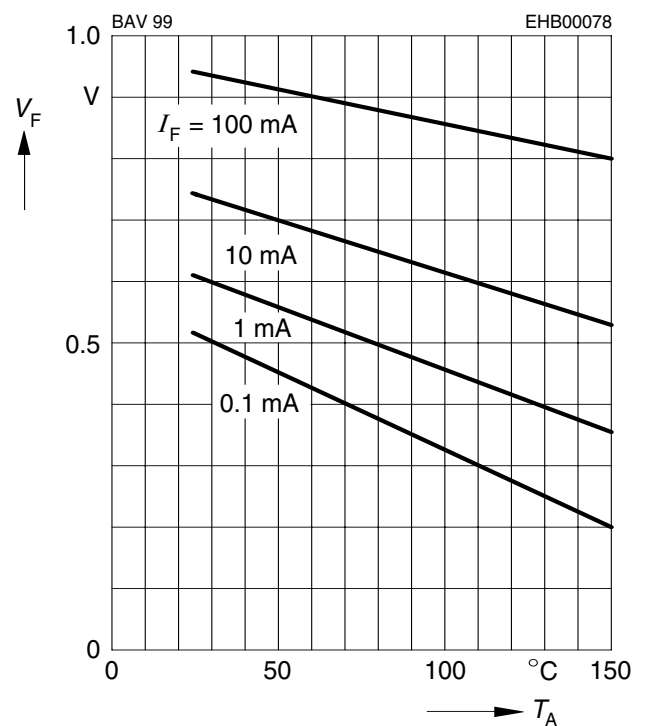
**Reverse current  $I_R = f(T_A)$**

$V_R = \text{Parameter}$



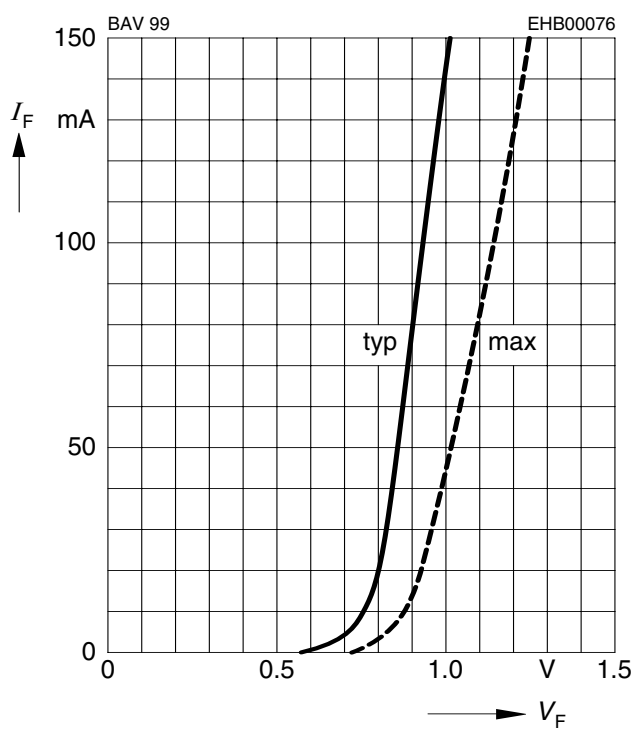
**Forward Voltage  $V_F = f(T_A)$**

$I_F = \text{Parameter}$



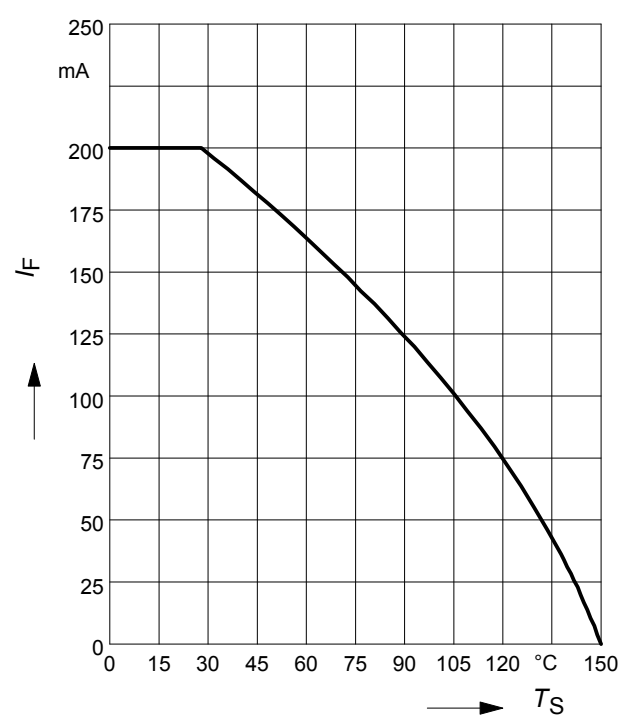
**Forward current  $I_F = f(V_F)$**

$T_A = 25^\circ\text{C}$



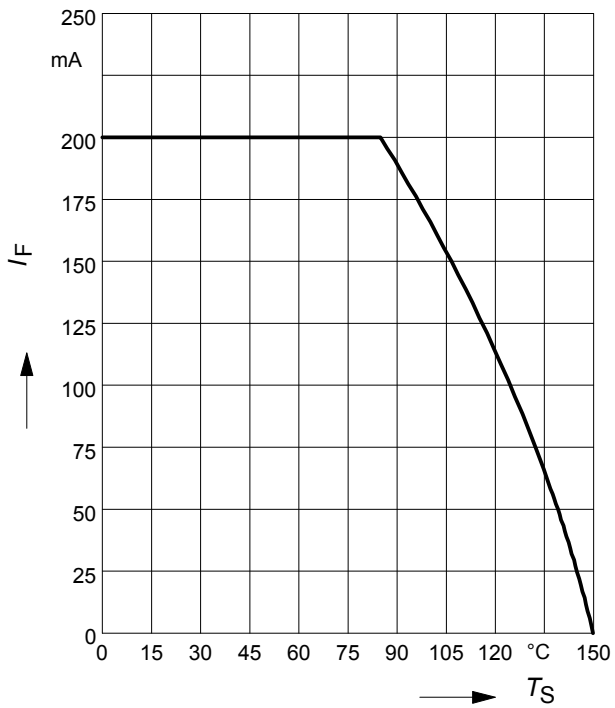
**Forward current  $I_F = f(T_S)$**

BAV99



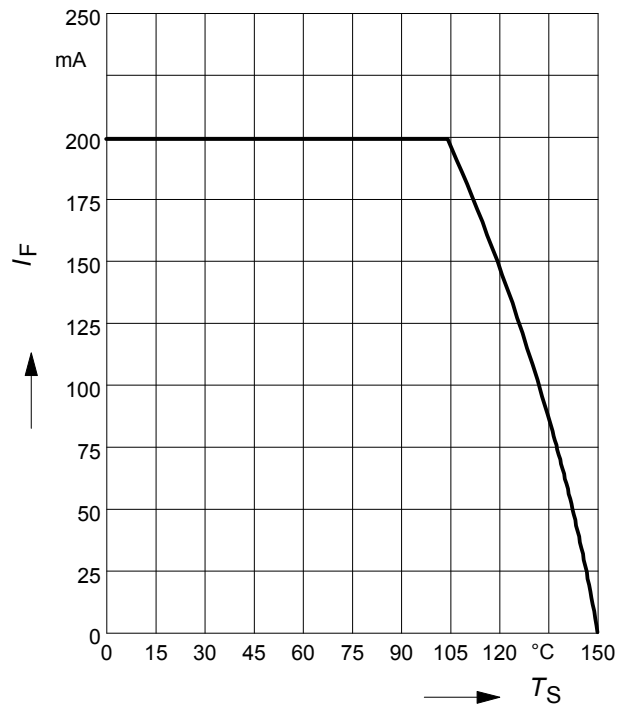
Forward current  $I_F = f(T_S)$

BAV99S



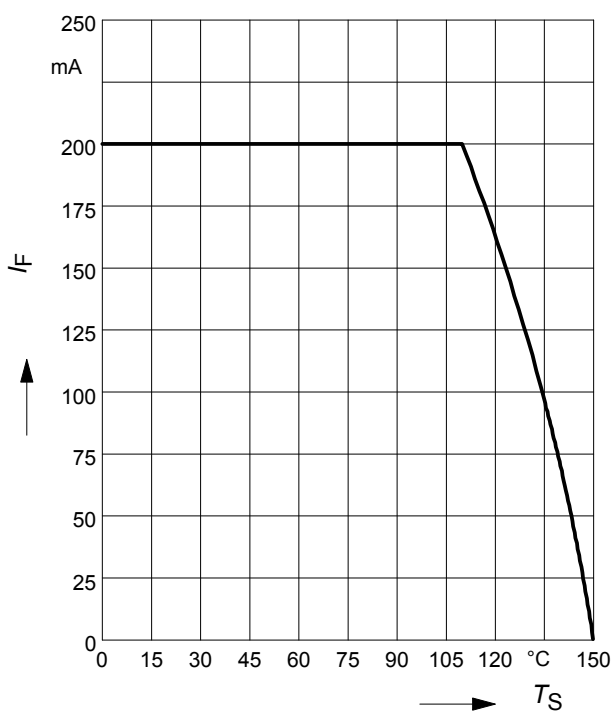
Forward current  $I_F = f(T_S)$

BAV99T



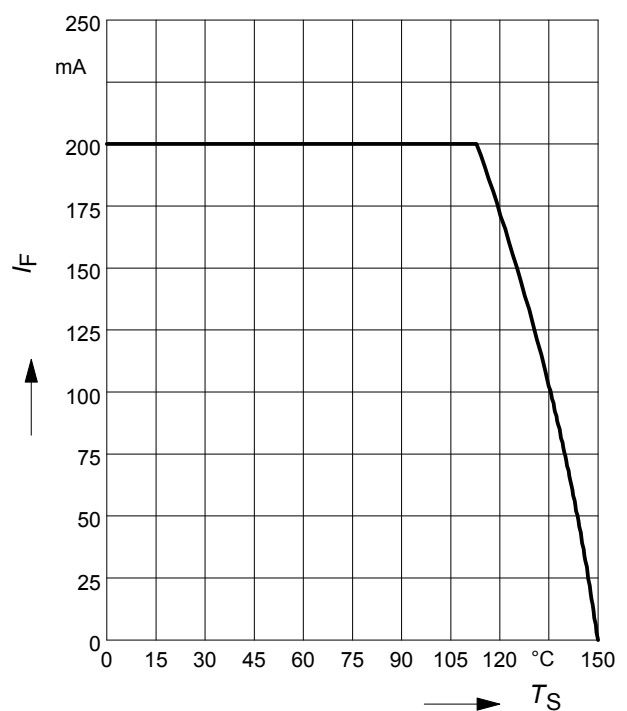
Forward current  $I_F = f(T_S)$

BAV99U



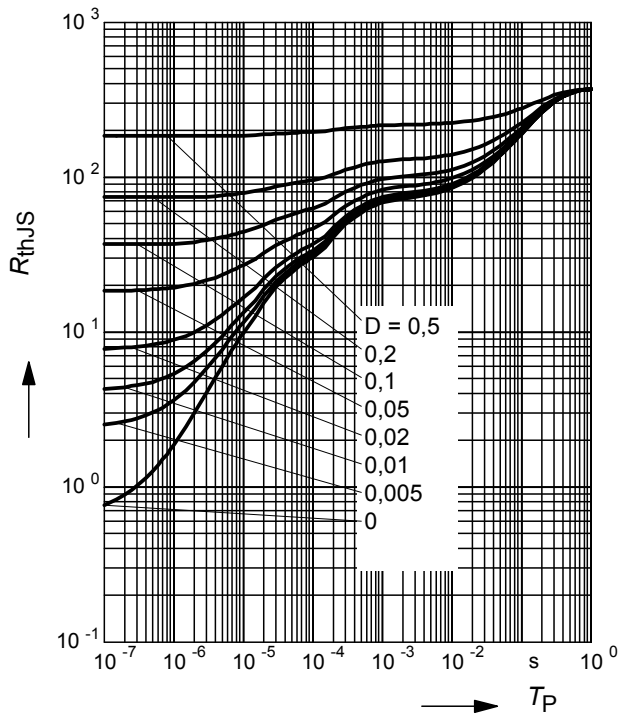
Forward current  $I_F = f(T_S)$

BAV99W



**Permissible Puls Load  $R_{thJS} = f(t_p)$**

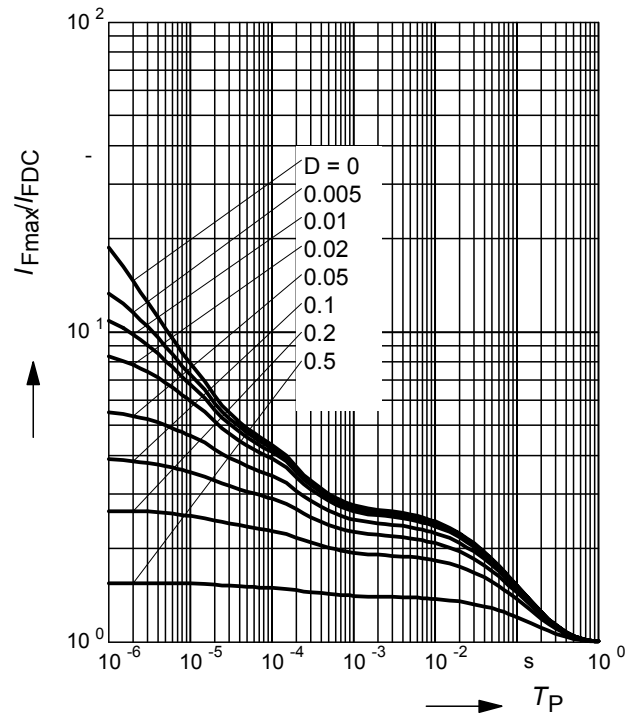
BAV99



**Permissible Pulse Load**

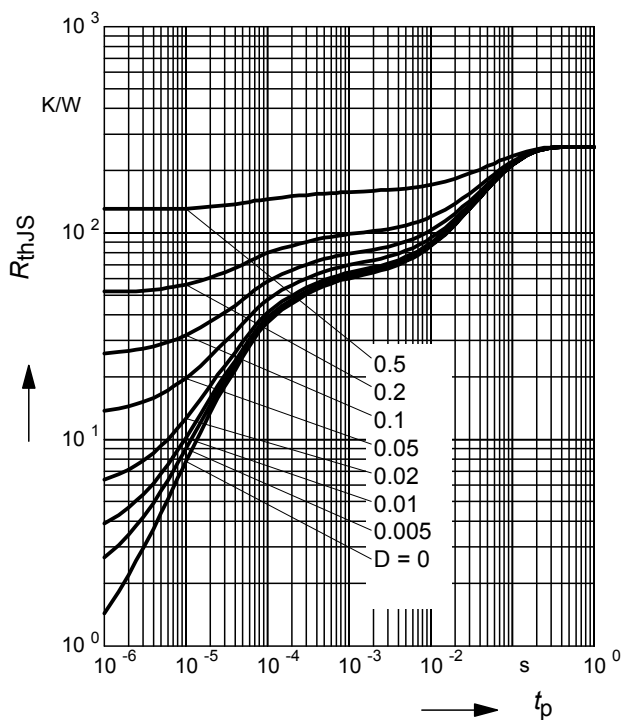
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAV99



**Permissible Puls Load  $R_{thJS} = f(t_p)$**

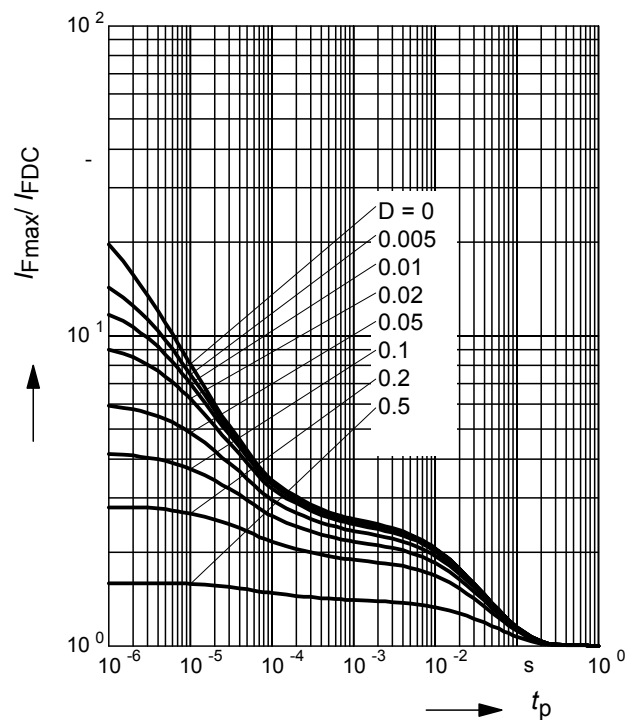
BAV99S



**Permissible Pulse Load**

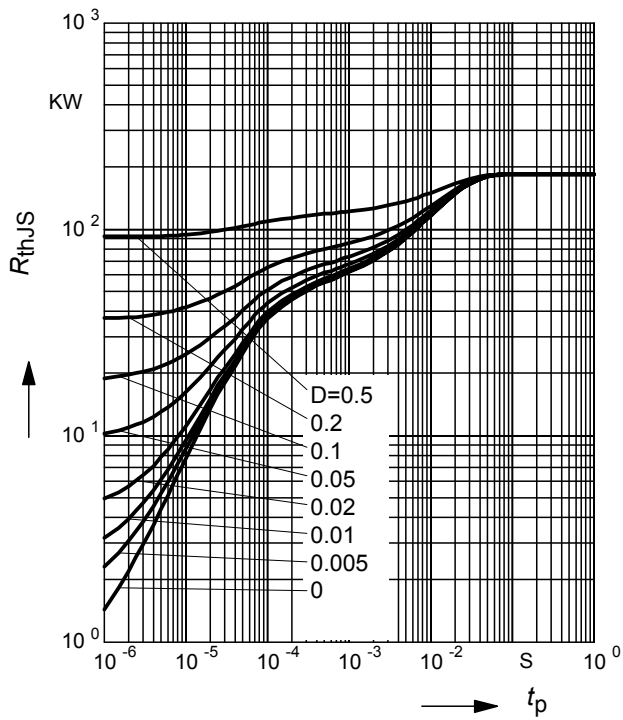
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAV99S



### Permissible Puls Load $R_{thJS} = f(t_p)$

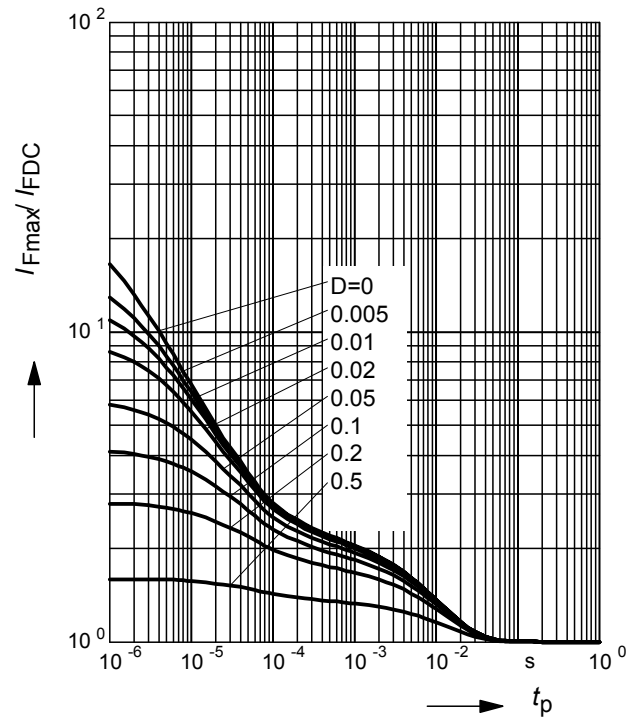
BAV99T



### Permissible Pulse Load

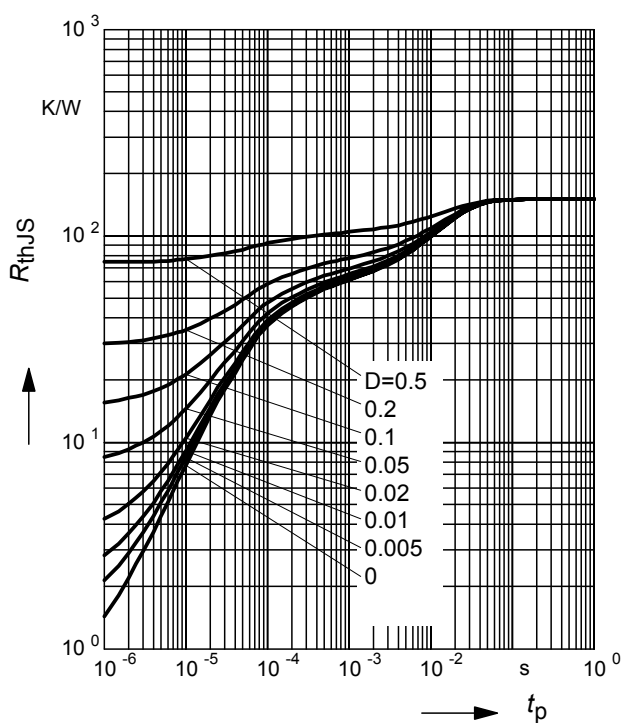
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAV99T



### Permissible Puls Load $R_{thJS} = f(t_p)$

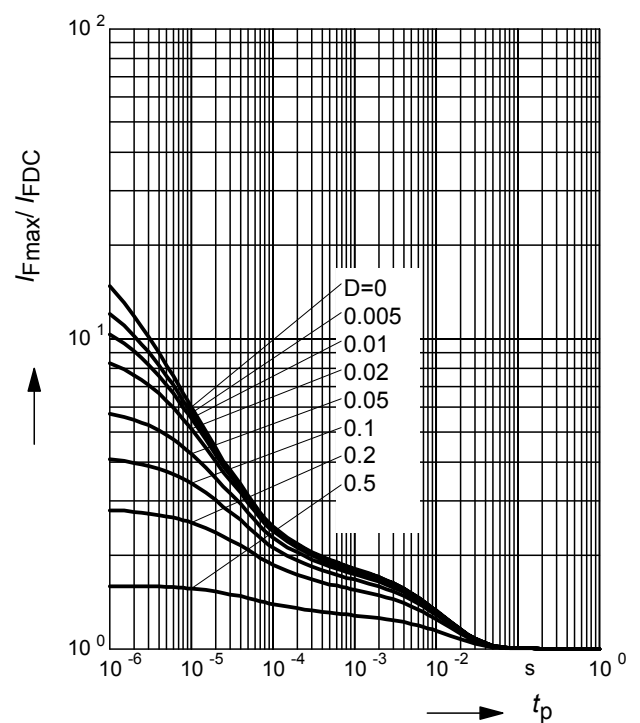
BAV99U



### Permissible Pulse Load

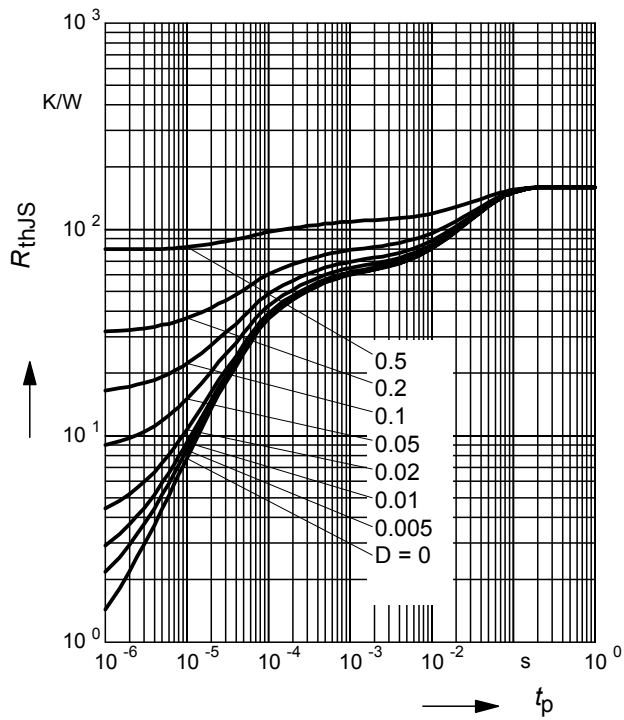
$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAV99U



**Permissible Puls Load  $R_{thJS} = f(t_p)$**

BAV99W



**Permissible Pulse Load**

$$I_{Fmax}/I_{FDC} = f(t_p)$$

BAV99W

